AN EFFICIENT AND ECONOMICAL HERBARIUM PASTE

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Generally speaking, ordinary types of fish glue have been found to be very unsatisfactory for mounting botanical specimens, because, when dry, there is a great tendency for thick leaves, branchlets, etc., to "snap off" as the sheets are handled. This entails considerable loss of valuable material and much extra repair work in any large herbarium; yet curiously, little attention seems to have been given to the matter of selecting adhesives better adapted to the purpose. Aqueous solutions of gum arabic (the best form for use is powdered acacia), or a mixture of gum arabic and gum tragacanth protected against fermentation by the addition of a small amount of carbolic acid, are, generally speaking, more satisfactory than ordinary types of glue. The chief objection to the use of gum arabic or of gum tragacanth is the fact that a certain degree of viscosity is essential to insure the best results, and proper viscosity can be determined only through actual experience.

About two years ago my attention was called to Special A Tin Paste, manufactured by the Russia Cement Company, Gloucester, Mass. This product was developed primarily for attaching labels to tin cans. A wide experience with this paste, involving the actual mounting of over 30,000 sheets of herbarium material, has demonstrated that it is in general eminently satisfactory for the purposes indicated and is far superior to the ordinary types of glue now generally used.

The product is one of the inverted starch pastes much thinner than the ordinary library pastes of the same general class. It is low in price, flows readily, has a pleasant odor, and comes in a form entirely satisfactory for immediate use, requiring no thinning, heating, or other treatment. Furthermore, it is durable, does not become brittle, nor weaken, crack, or loosen with age, as do the ordinary types of fish glue such as are currently used in mounting botanical materials. It is available in one-gallon cans, six cans to the case, in five and ten-gallon kegs, and in half-barrels and barrels. It keeps indefinitely.

Shortly after I commenced using this product, the preliminary results being so excellent, I called the attention of the curators of several large herbaria to its advantages. At the Field Museum of Natural History, an analysis of it was made by Dr. H. W. Nichols. This analysis indicates that the paste is entirely free from the corrosive soluble sulphates and chlorides that are commonly found in inverted starch pastes. It does contain small percentages of free phosphoric acid and acid phosphate of sodium. Dr. Nichols' tests indicate that it does not discolor white paper and a two months' test indicated no deleterious effect on either the specimens or the paper. He suggested, however, the possibility that the corrosive acids may in the course of years, damage the specimens. Judging from the experience I have had with the product over a period of two years, this possibility does not seem to be at all likely.

In order to check the possible action of Special A Tin Paste on delicate plant tissues, I selected the petals of about twenty-five species of plants, representing yellows, pinks, blues, reds and purples, dried them quickly to preserve the natural colors, and then mounted them in parallel columns on white paper, using ordinary fish glue for one set and an unusually large quantity of Special A Tin Paste for the other. This test sheet was exposed to the light of an ordinary laboratory for a period of eight months and during a part of the time to direct sunlight. Actual fading was practically the same in both sets. The only colors affected at all by the paste were the blues and purples and then only in very small areas where the petals had been bruised in pressing; there was in such areas a tendency for the blues and purples to turn red on account of the acid character of the paste. This insignificant discoloration was immediate and the areas affected showed no increase in size after the paste was set. Otherwise there was no discoloration of the delicate petals mounted with the paste, and no deterioration has been noted.

Special A Tin Paste is admirably adapted for mounting thin plants, but with specimens having very thick stiff leaves it is sometimes difficult to secure proper adhesion between the paste and the plant. At the Gray Herbarium, where, following my suggestion, it has been rather extensively used, this difficulty has been overcome by using it in connection with Improved

Process Glue, manufactured by the same company. The mix is made on the plate, the Improved Process Glue being spread on the plate and then thinned by wetting the brush with Special A Tin Paste. Occasionally the glue is renewed, but not often. In general practice, the use of about one-fourth Improved Process Glue and three-fourths Special A Tin Paste seems to give the best results.

Experienced mounters will of course vary their methods according to circumstances in the light of previous experience, and with reference to the general type of material being mounted. I do not hesitate in recommending Special A Tin Paste, either alone or combined with Improved Process Glue, as being definitely superior to any type of ordinary fish glue I have been able to secure.

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A NEW CATCHFLY FROM THE SOUTHEASTERN STATES

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Recent studies, both in the field and in the herbarium, have brought an additional catchfly to our attention. Concerning the recognition of this plant as a new species, Dr. Wherry writes me as follows: "The common rock-catchfly of the eastern states, *Silene caroliniana* Walter, grows typically on shaly or gravelly slopes, where the soil reaction is usually distinctly acid. I was therefore rather surprised to see, while on a trip across Kentucky a few years ago, what appeared from the train window to be the same plant thriving on limestone ledges in the Interior Low Plateaus Province. Later on, during a trip in search of *Phlox Stellaria* along the Kentucky River near Camp Nelson, south of Lexington, under the guidance of Professor Frank B. McFarland of the University of Kentucky, opportunity to examine the *Silene* more closely presented itself, and it then seemed that it might possibly be new. I am accordingly sending to you these notes upon it, because if it is a new species you will wish to include it in your forthcoming Manual of the Flora of the Southeastern States."